from the diminution of atmospheric pressure. He has already, however, discovered some very important practical rules. In order to prevent accidents, the pressure must be diminished very circumspectly. If it have reached 9 or 10 atmospheres, at least 12 minutes per atmosphere must be allowed for the removal of the pressure, in order to avoid all danger. It seems better to diminish the pressure rather quickly, by 1 or 2 atmospheres at a time, and then to leave it constant for some time, than to diminish it more slowly and constantly.

When accidents have occurred, and paralysis has taken place, and death is imminent, the author thinks the best thing to do is to increase the pressure at once, so that the gas which has become free in the blood may at once be re-dissolved. His apparatus has not permitted him to increase the pressure with sufficient rapidity to obtain successful results with animals; but in the case of divers it can be done with the greatest ease by making them descend again to a sufficient depth. Although M. Bert has not succeeded in removing the bubbles of nitrogen gas from the blood of animals in this manner, he has managed to do it by making them inhale oxygen. The nitrogen then diffuses rapidly from the blood as it circulates in the pulmonary vessels into the oxygen with which the lungs are filled. When a dog, in whose heart a gurgling sound was heard, and whose jugular vein was distended with gas, was made to inhale oxygen, the distension of the vein very quickly disappeared, the cardiac sounds became normal, the respiration became regular, and the rapidly impending death was averted. After several hours, however, paralysis occurred, and this was seen on post-mortem examination to be due to minute bubbles of gas in the small vessels of the nerve-centres, which has caused local arrest of the circulation. In this manner they had both destroyed the vitality of the nerve-centres, and at the same time prevented their own removal, for free gas had entirely disappeared from the blood in the general circulation. The inhalation of oxygen, however, prevents immediate death, and it may be employed to preserve life till the atmospheric pressure can again be raised sufficiently to induce the more or less complete reabsorption of the bubbles of gas, and thus re-establish the circulation. When this is once effected, all further danger may be avoided by simply diminishing the pressure again very gradually. M. Bert advises that all divers and workmen who are exposed to danger from sudden diminution in atmospheric pressure should inhale oxygen whenever they feel, after ascending, any uneasiness which may occasion fears of something serious. After inhalation, the atmospheric pressure may be again raised by descending, if it be thought advisable. The author considers that the same treatment might be successfully employed in accidents arising from the introduction of air into veins.—*London Med. Record*, June 18, from *Comptes Rendus*, March 3, 1873.

MATERIA MEDICA, GENERAL THERAPEUTICS, AND PHARMACY.

7. *Constitution and Action of Croton-Chloral Hydrate.*—Dr. OSCAR LIEBREICH gave an account of the action of this substance, comparing it with chloral hydrate, and pointing out some of the conditions indicating its use. Its action differed from that of chloral hydrate in that, while it produced sleep, it did not affect muscular tone or interfere with circulation or respiration. Its use was indicated where chloral hydrate was inapplicable on account of heart-disease; and in cases of neuralgia affecting the trigeminal nerve. Where large doses of chloral were necessary to procure sleep, Dr. Liebreich recommended the addition of some croton-chloral.—*Proceedings Brit. Med. Assoc.* in *Brit. Med. Journal*, Aug. 30, 1873.

8. *Local Applications of Chloral.*—Chloral, besides its hypnotic properties,

seems to possess an antiputrid action. Either the hydrate of chloral, or what is called metachloral, may be used. The latter, according to Dumas, is prepared by placing in a bottle with an emery stopper some chloral and five or six times its weight of sulphuric acid. The next day the chloral is transformed into metachloral, which must be well washed with water to remove the sulphuric acid. It is a coarse white powder, smelling strongly of chloral, hardly soluble even in boiling water, and distilling between 150° and 200° C. without melting. Regnault has shown that it is similar in composition to chloral, and its formula is $C_4HC_3O_2$, being simply an isomeric modification of chloral Dr. Dujardin-Beaumetz, of Paris, has lately experimented on the local application of chloral as a caustic or modifying agent and a local anæsthetic. It may be applied in substance, which mode is rather difficult, or in solution of different strength—namely, one or two per cent. in water or glycerine. Metachloral is applied in powder upon foul wounds, replacing advantageously iodoform, the smell of which is so disagreeable. Cases are given where the application of chloral has been of much use in gangrene, phagedena, rodent ulcers, lardaceous ulcerations, certain diseases of the skin, lupus, and for modifying the cavities of abscesses, etc. It is of much value in relieving the pain of cancerous ulcerations; and, as chloral possesses the property of preventing decomposition of the urine, Dr. Beaumetz thinks that in certain diseases of the bladder it may be usefully injected into that viscus.—*Lancet*, Aug. 30, 1873.

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9. *Therapeutical Value of Phosphorus.*—In an interesting paper on the physiological action and therapeutic effects of phosphorus, M. Gubler states that phosphorus is a diffusible stimulant of great energy and of dangerous activity. It should therefore only be prescribed with the greatest possible caution, and certain contra-indications may in the first instance be laid down. Thus it should not be used in any affection characterized by nervous, circulatory, or trophic excitation, as in tonic and clonic convulsions, contractions, neuroses having a hypersthenic origin, diffuse peri-encephalitis with general paralysis, phlegmasiæ of all forms, fevers of every kind, exanthematous affections, etc. The indications for its use are the existence of disease unaccompanied by inflammation, fever, and nervous excitation, and especially in such cases as are characterized by depression of the circulation, either local or general, diminished power of generating heat, exhaustion or local asthenia, with paralysis of sensation and movement. Hence its value in cachectic states consecutive to long and exhausting diseases, marsh fevers, protracted convalescence, tabes dorsalis, paralyses of old date, and of cerebral, medullary, or peripheric origin, when there are no signs of irritation; in hemiplegia, paraplegia, amaurosis, and other partial paralyses. Phosphorus again is sometimes useful in making chronic eruptions advance or recede; but it is especially as a remedy for impotence that it has been praised, though it has often disappointed the expectations of those who have prescribed it, and has either proved of no value at all, or its effects have only been ephemeral. Hence it would appear that the real remedial power of phosphorus is considerably restricted, and that it can only be regarded as of great value in paralytic affections. Dr. Delpech, who has studied so deeply the effects of sulphuret of carbon, praises phosphorus highly as an agent to remove the paralysis and loss of power which accompany intoxication by that substance. It is also of service in the so-called rheumatismal and hysterical paraplegiæ, or in other words those forms of paraplegia which are not caused by organic lesion, as well as in cases of cerebral disease in which all irritation has ceased and cicatrization has taken place. It is still more strongly indicated in cases of asthenic and diffused paralysis, consequent on diphtheria or some other acute affection. Gueneau de Mussy, Isambert, and Féréol have all found it efficacious in the treatment of mercurial tremour; it is also believed to be so in paralysis agitans and in the various forms of medullary sclerosis affecting the antero-lateral cords, and above all in sclerosis of the posterior columns, the symptomatic expression of which is summed up in the term locomotor ataxy, which has been applied to it by Duchenne. Dujardin-Beaumetz is he who has most strongly recommended the plan of treatment by phosphorus in this and similar affections; but it is questionable, M.